

Circulatory System: Blood Vessels –Highway to Life	
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UNIT: Animals Structure and Function	TITLE OF LESSON : Blood Vessels-Structure and Function
<p>BIG IDEAS: The development and uses of technology to maintain human health are based, in part, on the changing needs of society.</p> <p>Groups of organs with specific structures and functions work together as systems, which interact with other systems in the body.</p>	<p>MATERIALS:</p> <ul style="list-style-type: none"> • Chart-paper for Venn-Diagram • Coloured markers • LCD Projector • Screen • Chalk • Handouts
<p>MINISTRY EXPECTATIONS:</p> <p>E1. Analyse the relationships between changing societal needs, technological advances and our understanding of internal systems of humans.</p> <p>E3. Demonstrate an understanding of animal anatomy and physiology, and describe disorders of the respiratory, circulatory, and digestive system</p> <p>Specific Expectations:</p> <p>E2.1 Use appropriate terminology related to animal anatomy, including but not limited to: <i>ammeter, amperes, battery, current, fuse, kilowatt hours, load, ohms, potential difference, resistance, switch, voltmeter, and volts [C]</i></p> <p>E3.3 explain the anatomy of the circulatory system (e.g., blood components, blood vessels, the heart) and its function in transporting substances that are vital to health</p> <p>E3.4 describe some disorders related to the respiratory, digestive, and circulatory systems (e.g., asthma, emphysema, ulcers, colitis, cardiac arrest, arteriosclerosis)</p>	
<p>STUDENT LEARNING GOALS:</p> <ul style="list-style-type: none"> • Understand the flow of blood within the circulatory system and its role in delivering oxygen • Appreciate the differences in structure of arteries, veins and capillaries • Understand how the structures of these vessels are related to their function • Investigate circulatory disorders/disease and societal causes 	<p>APPENDICES:</p> <p>A1. Circulatory system video link (http://www.youtube.com/watch?v=CjNKbL - cwA)</p> <p>A2. Slide overview of circulatory system</p> <p>B1. Chalkboard Outline: Blood vessel note</p> <p>B2. Handout/Slide: blood vessel diagram</p> <p>B3. Disease Specific Summaries: <i>Heart Attack, Atherosclerosis, Coronary Artery Disease, Stroke, Angina</i></p> <p>B4. Student summary tables</p>
<p>PRIOR KNOWLEDGE:</p> <p>Students should have prior knowledge of, or be familiar with:</p> <ul style="list-style-type: none"> • The components of blood and its role in transporting 	

oxygen and carbon dioxide, among others • The role of blood vessels in transporting blood throughout the body			
	T/L STRATEGIES	RATIONALE	ASSESSMENT
A MINDS ON (5 min)	1) Video: Overview of Circulatory System and Vessels http://www.youtube.com/watch?v=CjNKbL-cwA (A1, A2) 2) Discuss previous lesson's H.W.	Give a visual overview of the different types of blood vessels in the circulatory system.	Ask a student to name the different blood vessels in order starting from the heart with reference to Slide Diagram (A2)
B ACTION (30 min)	1) Structure of Vessels: Notes on structure of arteries, capillaries and veins (B1), using diagram on PowerPoint as well as student handout (B2).	To learn the general structures of the different types of blood vessels, and connect it later to its functions.	Venn Diagram With a group of 3 – 4, draw a Venn Diagram with 3 circles overlapping, labelling one as 'artery', second as 'vein' and the other as 'capillary' on chart paper. By looking at the text book as well as figures on PowerPoint, write down similarities and differences between arteries and veins. Have each group present at the end (10 min) **leave space for next exercise
(15 min)	2) Functions of Blood Vessels Think-pair-share: Consider the differences and the unique structural characteristics of artery, capillaries and veins (i.e. Artery: Thick, muscular wall, Capillary: Wall only 1 cell thick, Vein: Presence of valves). Individually think of possible functions of each that relates to the unique structures, and then share with partner.	To make the connection between the structure and the function of the different blood vessels	Fill in understanding of function on same Venn diagram with different coloured markers

(15 min)	<p>3) <u>Investigating disease and disorders related to blood vessels:</u></p> <p>In groups of 4 investigate summaries (B3) of specific disease and briefly summarize in table (B4): symptoms, causes, and treatment.</p>	Apply knowledge of blood vessels to gain an understanding of its effects on human health. As well as using inquiry and communication skills to extract information	Students will post their completed table on chart paper and the class will do a gallery walk to learn the various diseases.
<p>C CONSOLID- ATION & CONNEC- TION (10 min)</p>	<p>1) Socratic discussion of Metaphors for different blood vessels, including: highways, straws, hoses and postal service</p> <p>H.W. : Review the relationship between the structure and the function of the different types of blood vessels</p>	Using knowledge application to further and deepen student understanding of the concepts of speed of flow, in relation to volume, surface area, diameter etc.	Student answers and feedback.
NEXT STEPS	The heart, and its role in the circulatory system		